

REMARKS

The Prior Art Rejections

Several prior art rejections are outstanding. None of the prior art references teaches or suggests an embodiment where a pressure weld is used. The references teach filling capillaries with molten metal (see Ahn column 2, lines 37-41), filling a hole with a hot ceramic that has been immersed in molten metal which metal expand upon cooling (see Wainer column 11, lines 29-42), the use of a paste or hot solder (see Tukude column 4, lines 9-13), the placement of a diode into a glass slurry that is then air dried, baked in an oven and fired in a furnace (see Myers column 3, line 57 to column 4, line 16), or melting and fusing a bead that readily flows into a port (see Hall column 3, lines 40-44).

A pressure weld, which includes cold and hot pressure welding, welding by movement, friction welding, ultrasound welding, etc., contrary to the Examiner's allegations is not merely a process limitation that holds no weight in a product claim. A pressure weld leads to improved properties in the products formed over the products of the references. A pressure weld leads to structural differences in the bond of the product itself, and thus, the product itself prepared by a pressure weld is different than products that are bonded together by methods of the cited references.

To demonstrate the structural differences in the products, applicants attach pages 18-21 from a book titled *Principles of Welding, Processes, Physics, Chemistry, and Metallurgy*, by Robert W. Messler, Jr., John Wiley & Sons, 1999. On page 19, a figure having parts (a) to (e) demonstrates the effect on the structure of the materials bonded by a variety of welding techniques. Figures (a) and (b) demonstrate the effect on the structure of the bonded materials of a cold and hot pressure welding process; see accompanying discussion on page 18, about the middle of the page to page 20, about the middle of the page, discussing the attendant changes in properties of the structure of the materials when pressure welded. Figures (d) and (e) demonstrate the effect when material (the parent or a substrate) is melted; see accompanying discussion on page 21, first full paragraph, discussing the attendant changes in properties of the structure of the materials when material is melted, as in all of the cited references. The structures of the products obtained by differing welding processes are different.


Additionally, on page 9 of the specification, applicants disclose that a diffusion weld process (which is a solid-phase diffusion (page 20, lines 14-15 from the bottom of page of

Messler)) can also be used. New claim 29 is directed to a product welded by diffusion welding. The effect on structure of a diffusion weld process is demonstrated in the Messler figure part (c).

Thus, the claimed product is patentable over the prior art.

The Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

Respectfully submitted,



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